

CLAIMS

We claim:

1. A system for conducting renal replacement therapy, comprising:

a renal replacement therapy machine including a controller having at least one selectable therapy function for carrying out a renal replacement therapy task, and generating a data output based upon the renal replacement therapy task, and an interface coupled to the controller having an input for an operator to select the therapy function;

a transmitting/receiving device linked to the controller adapted for receiving the data output of the controller and transmitting corresponding data to a remote location;

a main database server installed at the remote location, the server adapted to receive the corresponding data from the transmitting/receiving device and to process the corresponding data to generate a processed output; and

at least one satellite server installed at a site remote from the location of the renal replacement therapy machine and the main database server and linked to the main database server, including a function to receive the processed output.

2. A system for conducting renal replacement therapy, comprising:

a renal replacement therapy machine including a controller having at least one selectable therapy function for carrying out a hemofiltration task, and generating a data output based upon the renal replacement therapy task, the controller also having a safety monitoring function which generates a safety alarm output, and an interface coupled to the controller having an input for an

operator to select the therapy function and an output for notifying the operator of the safety alarm output;

a transmitting/receiving device linked to the controller adapted for receiving the data output and safety alarm output of the controller and transmitting data corresponding to the data output and safety alarm output to a remote location; and

a main database server installed at the remote location, the server adapted to receive the corresponding data from the transmitting/receiving device and to generate a processed output based on the corresponding data; and

at least one satellite server installed at a site remote from the location of the renal replacement therapy machine and the main database server and linked to the main database server, including a function to receive the processed output.

3. A system according to claim 1 or 2, wherein the transmitting/receiving device is linked to the controller by means including electrically, phone lines, optical cable connection, infrared light, or radiofrequency, using cordless phone/modem, cellular phone/modem, or cellular satellite phone/modem, or combinations thereof.

4. A system according to claim 1 or 2, wherein the transmitting device includes a laptop computer, or a handheld PC device, or web tablet, or cell phone, or combinations thereof.

5. A system according to claim 1 or 2, wherein the transmitting/receiving device is linked to the main database server by means including a local area network and the Internet.

6. A system according to claim 1 or 2 wherein the satellite server comprises an inventory server operative to generate a responsive output based upon the processed output including equipment inventory information.

7. A system according to claim 6

further including at least one remote component supply facility linked to the inventory server to receive the equipment inventory information.

8. A system according to claim 1 or 2 wherein the satellite server comprises a service server operative to generate a responsive output based upon the processed output including component status information.

9. A system according to claim 8

wherein the service server includes a function to process the component status information according to preprogrammed rules and generate service-related output including a diagnostic report, or a service request, or a maintenance schedule, or combinations thereof.

10. A system according to claim 9

further including at least one remote service facility linked to the service server to receive the component status information.

11. A system according to claim 1 or 2 wherein the satellite server comprises a treatment monitoring server operative to generate a responsive output based upon the processed. output including treatment information.

12. A system according to claim 11
further including at least one remote monitoring facility linked to the treatment monitoring server to receive the treatment information.

13. A system according to claim 1 or 2
wherein the main data base server includes a function to transmit the processed output to the local transmitting/receiving device, and
wherein the transmitting/receiving device includes a function for displaying or printing the processed output.

14. A system according to claim 1 or 2
wherein the main data base server includes a function to download to the local transmitting and receiving device a control program to execute a specified task function using the machine, and
wherein the controller includes a function to download the control program from the local transmitting and receiving device for execution by the machine.

15. A system according to claim 1 or 2

wherein several renal replacement therapy machines, each at a different treatment site, are individually linked to the main data base server through a local transmitting/receiving device, and

wherein the main data base server generates a processed output specific to each treatment site.

16. A system according to claim 15

wherein the main data base server generates a consolidated output based upon the processed outputs specific to each treatment site.

17. A system for conducting renal replacement therapy, comprising

a hemofiltration machine including (a) a controller having a safety monitoring function which generates a safety alarm output and underlying safety data, (b) an interface coupled to the controller having an output for notifying the operator of the safety alarm output, and (c) a transceiver adapted to receive the safety alarm output and underlying safety data from the controller and to transmit corresponding data; and

a main database server installed at a remote location, the server adapted to (a) receive the corresponding data from the transceiver, (b) process the corresponding data to generate context-sensitive help data pertaining to the alarm condition, and (c) transmit the context-sensitive help data to the transceiver,

wherein the transceiver receives the context-sensitive help data, and

wherein the renal replacement therapy machine generates a context-sensitive help display or printout based on the context-sensitive help data received by the transceiver.

18. A system according to claim 17, wherein the transmitting receiving device is linked to the controller by means including electrically, phone lines, optical cable connection, infrared light, or radio frequency, using cordless phone/modem, cellular phone/modem, or cellular satellite phone/modem, or combinations thereof.

19. A system according to claim 17, wherein the transmitting/receiving device includes a laptop computer, or handheld PC device, or web tablet, or cell phone, or combinations thereof.

20. A system according to claim 17, wherein the transmitting/receiving device is linked to the main database server by means including a local area network and the Internet.

21. A method for renal replacement therapy, comprising the steps of:

providing at a first location a hemofiltration machine and a communicating device linked to the renal replacement therapy machine;

providing at a second location a main database server;

operating the renal replacement therapy machine at the first location to receive blood from a patient at a flow rate, pass the blood through a filter, remove waste and ultrafiltrate from the blood, restore replacement fluid to the blood, and infuse the blood into the patient;

communicating data to the main database server at the second location, the data including at least one of a signal indicating that treatment was performed, a measured flow rate,

an amount of waste and ultrafiltrate collected, an amount of replacement fluid used, or a difference between the amount of waste and ultrafiltrate collected and the amount of replacement fluid used;

processing the data to generate an output; and

comparing the amount of replacement fluid used with a known inventory at the first location to monitor a patient's stock of replacement fluid.

22. The method of claim 21, wherein data is communicated to the main database server by means including electrically, phone lines, optical cable connection, infrared light, or radio frequency, using cordless phone/modem, cellular phone/modem, or cellular satellite phone/modem, or combinations thereof.

23. The method of claim 21, further comprising the step of scheduling a delivery of replacement fluid to the patient based on the comparison of the amount of replacement fluid used with the known inventory at the first location.

24. The method of claim 21, further comprising the step of monitoring patient compliance with a prescribed treatment regimen by comparing the signal indicating that treatment was performed with a prescribed treatment schedule.